Department of Energy
Washington, DC 20585

March 15, 2010

MEMORANDUM FOR DISTRIBUTION

FROM: DAE Y. CHUNG
PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR
ENVIRONMENTAL MANAGEMENT

SUBJECT: Department of Energy Manual 460.2-1 Requirements Regarding Off-Site Shipments

Department of Energy (DOE) Manual 460.2-1, *Radioactive Material Transportation Practices Manual*, establishes a set of standard transportation practices for DOE, including National Nuclear Security Administration organizations to use in planning and executing offsite shipments of radioactive materials, including radioactive waste. The Manual is composed of 14 transportation practices which establish a standardized process and framework for interacting with State, Tribal and local authorities, other Federal agencies, and transportation contractors and carriers regarding DOE radioactive material shipments. The Manual reflects the ongoing collaboration of DOE and external organizations on transportation of radioactive material and waste.

The Office of Packaging and Transportation, Office of Environment Management (EM-45), obtains input on transportation activities from a broad range of stakeholder organizations through the National Transportation Stakeholders Forum, State Regional Groups, and through interaction with States, Tribes, local officials, carriers, regional groups and site advisory boards. The goal is to ensure State and Tribal planners, emergency responders, and community leaders are aware of DOE EM transportation activities before our shipments pass through the communities.

While the Manual does not require a transpoitation plan for all campaigns, we have found it beneficial to develop a fact sheet (see attached sample) to address key points and better inform our stakeholders.

To assist the State and Tribes in planning efforts, EM-45 provides the Prospective Shipment Report (PSR). The PSR contains planning information regarding projected shipments to assist the States and Tribes in planning resources for inspections, emergency response, accident prevention, and public information/outreach activities. The PSR has historically been used as a DOE-wide communications tool, and contained information from other Program Secretarial Offices to eliminate redundant and possibly confusing interactions with the States and Tribes. I would like to once again include all

programmatic shipping activities on the PSR. Shipping activities that meet any of the following criteria must be reported on the PSR:

- **Highway Route Controlled Quantity (HRCQ) Shipments**: HRCQ is the material of a Type B package that has additional requirements imposed during transportation. Regulatory citations include 49 CFR 173.403; 173.22(c); and 177.804.

- **High Visibility Campaigns**: Any unclassified shipment of spent fuel or radioactive waste that has had extensive National Environmental Policy Act review, or designated as high visibility by an appropriate program office.

- **Long-Term Shipping Campaigns**: Any shipping activity which transports incrementally large volumes of material. High-volume truckload shipments are defined to be those which a shipper schedules for an average of five or more truckload shipments per week between a given origin and destination for a period of three or more months. High-volume rail shipments of low activity radioactive materials are defined to be those which a shipper schedules for an average of 60 railcars or more per month between a given origin and destination for a period of three or more months.

- **Other Radiological Shipments as Determined by DOE**: Any radiological shipment as designated by the appropriate program office. For example, the Transuranic Waste Program has designated all shipments to Waste Isolation Pilot Plant to be included in the PSR.

To ensure that EM shipments are meeting the requirements of DOE Manual 460.2-1 and appropriate planning information is provided to the States and Tribes, I am requesting that all new shipping activities be coordinated through EM-45. In addition to EM, we are seeking input from all other Program Secretarial Offices on the PSR so we can provide one report to the States and tribes on a bi-annual basis, using the attached format. EM-45 will send out a request to update the information on a six month basis, beginning on April 1, 2010.

If you need additional information, please contact Mr. Stephen O'Connor, Director, Office of Packaging and Transportation, at (301) 903-7854.

Attachment

Distribution

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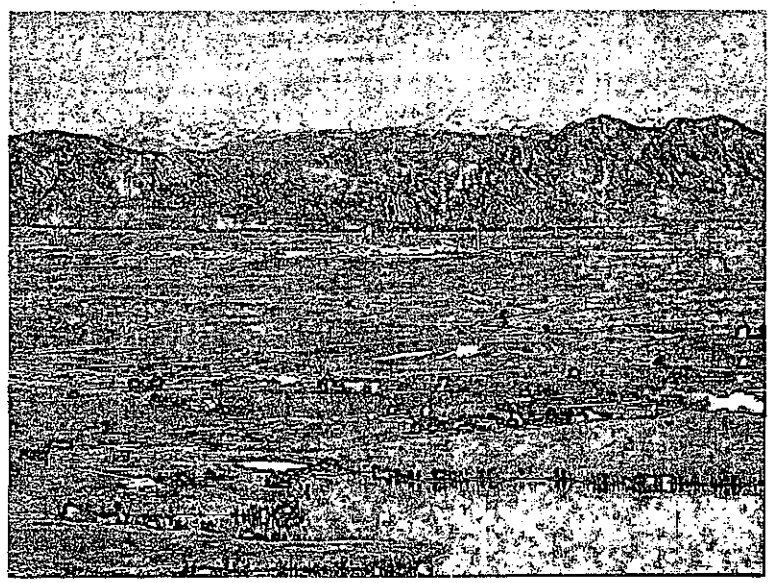
Rocky Flats Fact Sheet

Transporting low-level radioactive waste from Rocky Flats using railcars

Transporting low-level radioactive waste from Rocky Flats using railcars



Cleaning up Rocky Flats will return thousands of acres to the citizens of Colorado. The site will become a national wildlife refuge.

The Rocky Flats Closure Project is one of the largest environmental cleanup operations in the world. Rocky Flats, located approximately 15 miles northwest of Denver, produced plutonium and uranium components for the U.S. nuclear weapons program from 1953 until 1989. The operations left a legacy of radioactive and hazardous waste contamination. Cleanup operations began in earnest in 1995. As part of closure, all radioactive and hazardous waste will be shipped from Rocky Flats to waste disposal sites in other states. No waste will be permanently stored or disposed of on site.

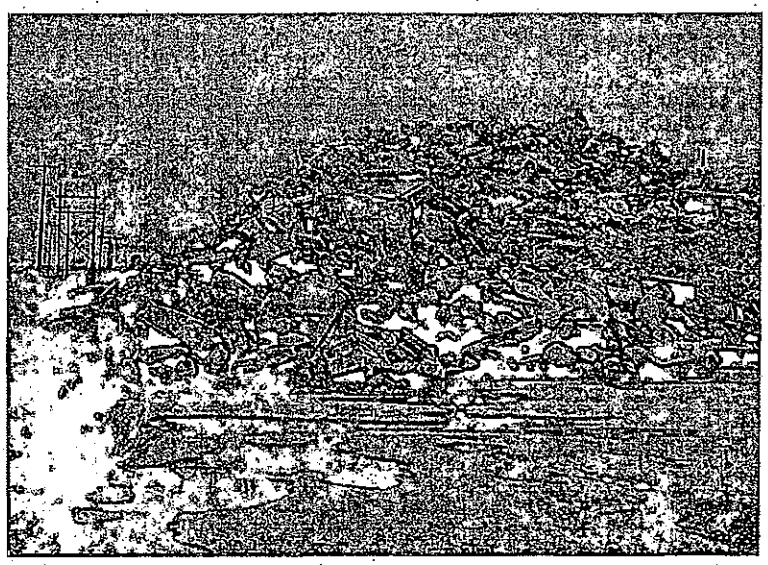
Currently, all low-level radioactive waste leaving Rocky Flats is transported by truck. As the Rocky Flats Closure Project nears completion, demolition of former manufacturing buildings significantly increases the volume of low-level radioactive waste. To improve efficiency and worker safety, the project will use railcars to ship very low-level waste to the Envirocare disposal facility in Utah. Using rail may eliminate as many as 5,000 truck shipments.

Background

The complex job of cleaning up and closing down Rocky Flats involves removing massive quantities of radioactive waste. To date, after nine years of shipping, Rocky Flats has safely shipped approximately 260,000 cubic meters (65 percent) of the projected 400,000 cubic meters of radioactive waste that will be generated during closure.

The types of radioactive materials at Rocky Flats can be segregated into three categories:

1. Transuranic waste is radioactive waste that contains more than 100 nanocuries of radioactivity per gram of waste. Rocky Flats will dispose of approximately 15,000 cubic meters of transuranic waste. To date, approximately 75 percent has been shipped to the Waste Isolation Pilot Plant near Carlsbad, N.M., the designated waste receiving site for these materials.
2. Low-level radioactive waste, which contains less than 100 nanocuries of radioactivity per gram of waste. Rocky Flats will dispose of an estimated 321,000 cubic meters of low-level waste. To date, more than 60 percent has been shipped to the Nevada Test Site and the Envirocare waste disposal facility in Clive, Utah.



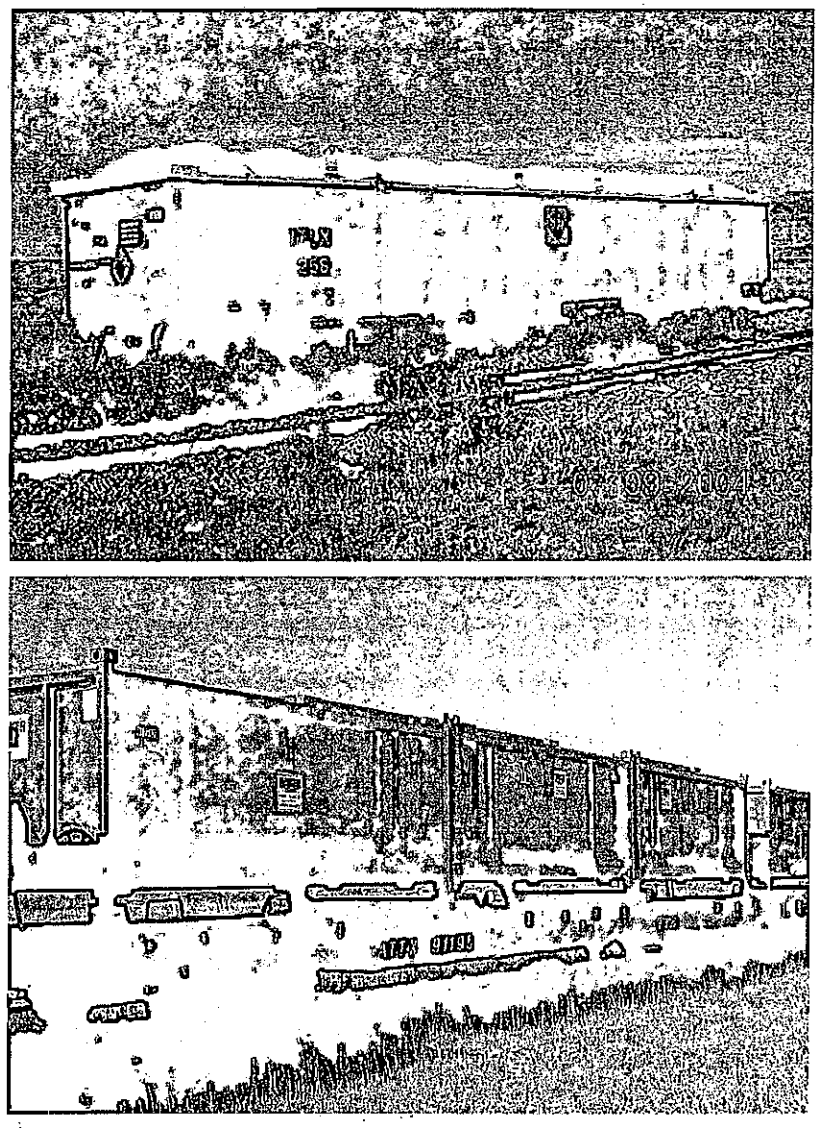
This is an example of the type of low-level radioactive waste to be shipped using railcars (the concrete in the photo above is not radioactive and is for illustration only).

3. Low-level radioactive mixed waste, which is low-level waste containing hazardous materials such as lead, PCBs, oil, etc. Rocky Flats will dispose of approximately 51,000 cubic meters of low-level hazardous waste; to date more than 80 percent has been shipped to Envirocare.

Low-level waste shipped by rail will go to the Envirocare facility. Envirocare is now permitted to receive both low-level and low-level radioactive mixed wastes.

What is the material? Is it dangerous?
Rocky Flats waste shipped by railcar has very low levels of radioactivity. The level of radioactivity in this waste is so low that it can be safely handled outdoors. The material will average less than 1 nanocurie per gram of waste (low-level waste can contain as much as 100 nanocuries of radioactivity per gram of waste). Envirocare can only accept low-level waste that contains less than 10 nanocuries per gram). Each car can hold 100 tons of waste, yet there will be no measurable radiation outside of the railcar. Shipments will consist of building demolition debris, mainly concrete and cinder block building and foundation rubble. Contaminated soil will also be shipped. No EPA-regulated hazardous waste will be shipped.

The majority of building rubble will come from the demolition of buildings 776 and 777. The two conjoined buildings are among the few buildings on site approved by the state of Colorado to be demolished while still containing low levels of radioactive contamination. Most of the radioactive contamination is being cleaned from the structure prior to demolition. Areas that cannot be thoroughly cleaned will be sprayed with a fixative that binds contamination to the structure.



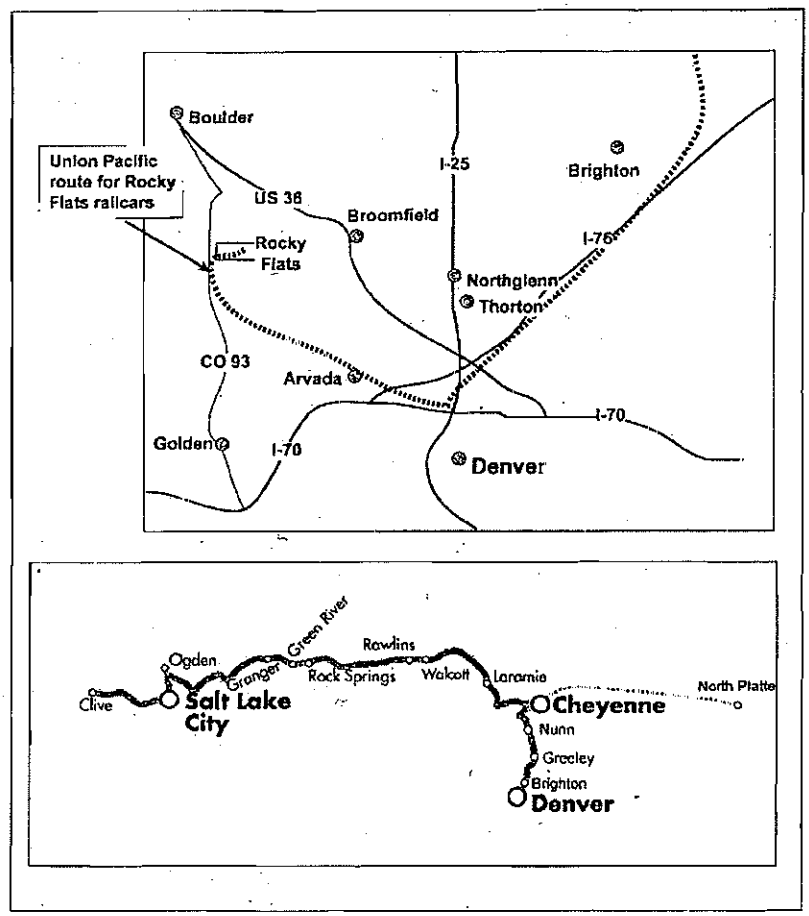
Rocky Flats will use a variety of railcars to ship waste. The photo at top shows a gondola-style car with a fiberglass lid. The photo above shows Intermodal containers loaded on a flatbad car. All shipments will meet applicable state and federal regulations.

What are the benefits of shipping by rail?
Using railcars to ship low-level radioactive waste from Rocky Flats has a number of advantages over shipping by truck. One railcar can hold the equivalent of up to seven truckloads. Shipping by rail may eliminate as many as 5,000 truck shipments that would otherwise travel on Colorado highways. This means less size-reduction and handling of the material by Rocky Flats workers, resulting in less exposure to industrial hazards from exposure to building rubble. Shipping by railcar is more efficient and cost-effective. Rocky Flats projects savings ranging from $7 to $16 million.

What type of railcars will be used?
Rocky Flats plans to use a variety of railcars to ship low-level radioactive waste, ranging from gondola-style cars to flatbeds that can transport Intermodal containers (see photos). All railcars used for shipping waste from Rocky Flats will meet Department of Transportation (DOT) regulations.

What routes will the trains take when travelling from Rocky Flats?

The map at right shows the approximate location of the Union Pacific railroad tracks that will be used to transport Rocky Flats waste. The waste will leave Rocky Flats, travel east through Arvada and unincorporated Adams County and enter a Union Pacific rail yard north of I-70 and west of I-25, just within the Denver city limits. The train will exit the rail yard, heading northeast through Brighton. Once outside of the Denver metro area, the railcars will travel north to Wyoming, then west through southern Wyoming using routes established for similar shipments from other DOE sites and commercial nuclear facilities. On occasion, cars may be routed east from Cheyenne to the North Platte, Neb. yard if necessary for railroad operations. The cars will then return to Cheyenne en route to Clive, Utah. This describes the typical route from Rocky Flats to Envirocare. Union Pacific may reroute rail shipping to maintain operations in emergent conditions.



Low-level radioactive waste shipped by rail from Rocky Flats will travel through Arvada, unincorporated Adams County and enter Denver city limits just north of I-70 and west of I-25. Shipments will then travel through Brighton, Greeley, Ault, Pierce and Nunn, Colo. to reach Cheyenne WY, where the shipment will typically travel west. On occasion, cars may be routed east to North Platte, Neb for temporary staging if necessary for railroad operations

All railcars will be loaded at Rocky Flats. Some siding (a short section of railroad track connected by switches with a main track) along the route from Rocky Flats to Denver may be used as a temporary staging area for convenience of assembling cars into trains. Railcars loaded with Rocky Flats waste may be shipped as "unit trains," meaning that the train consists only of Rocky Flats railcars, or on a "manifest" basis, meaning that cars will be picked up by the railroad and combined with other commercial railcars. Duration of shipments from Rocky Flats to Envirocare in Utah will average 5 to 7 days.

Emergency response

The railroad, in the unlikely event of an accident or incident involving one of these shipments will follow their established Hazardous Materials Response Plan. Support can be provided by DOE as required or needed. A system of emergency response resources is available to emergency response personnel from all levels of government. Emergency response personnel are trained to respond to accidents involving low-level hazardous material such as radioactive waste, which is a frequent cargo on U.S. rail lines. State and local government agencies and the rail carriers would have primary responsibility for response to the incident or accident. DOE has coordinated key emergency notification and response issues with the affected state emergency management agencies. DOE Radiological Assistance Program (RAP) teams are available to respond as requested for support in the event of an incident or accident. Rail carriers have established emergency response plans and have contingency plans for cleanup and recovery. The material being shipped from Rocky Flats will contain very low levels of radioactive material and no hazardous chemicals.

No liquids or gasses will be shipped by rail, only concrete, steel and soil; all of which can be easily retrieved in the event of a spill. All shipments will meet state and federal requirements.

Radioactive, Class 7 placards will be placed on railcars carrying low level waste in accordance with DOT regulations. (Some Rocky Flats waste may contain such low levels of contamination that special markings will not be required.) The containers inside each railcar will be labeled with the appropriate radioactive materials label to identify their contents and radioactivity level.

Why is Rocky Flats changing to rail now?
Waste being generated now, and in the near future, is higher in volume and lower in hazard and, because the majority of material consists of building rubble, is more amenable to large railcars than smaller cargo containers currently in use. In addition, demolition of several non-contaminated buildings and removal of high security fences now allow the installation of rail from existing track to near building 776/777.

For more information, contact . . .

- The U.S. Department of Energy – Rocky Flats Project Office: Karen Lutz (303) 966-4546
- Kaiser-Hill Company – John Corsi (303) 966-6526
- Colorado Department of Public Health and Environment –
  Marion M. Galant (303) 692-3304, or (888) 569-1531 (toll free)
  Environmental Spill Reporting Line -- (877) 518-5608 (toll free)

Rocky Flats Fact Sheet

RESPONSE TO ACCIDENTS INVOLVING RAIL TRANSPORT OF LOW LEVEL OR LOW LEVEL MIXED WASTE

The following outlines the process for responding to an incident and the notification process:

Incident - If an incident occurs the following notifications will be made in the subsequent order

I. **Railroad will make notifications to:**
- A Union Pacific Dispatch
  - 1. Union Pacific Emergency Operations Center who will call:
    - a. 911
    - b Local law enforcement
      - 1) Local HAZMAT
    - c Effected States
      - 1) Colorado
        - a) Colorado Environmental Spill Reporting Line, 1-877-518-5608
        - b) If incident occurs outside of Colorado, Colorado still needs to be notified
          - i. The state will notify State Radiation Management
        - c) Cities within Colorado
          - i. Denver
            - (1) 911
            - (2) Denver Central Fire Dispatch, 303-331-4146
              - (a) Denver fire will dispatch Denver HAZMAT
        - d) Colorado State Patrol HAZMAT, 303-239-4501
      - 2) Wyoming
        - a) Wyoming Homeland Security, 307-777-4321
          - i. The state will notify Health Physicist, 307-777-4951
      - 3) Utah
        - a) Utah Division of Emergency Services and Homeland Security, 801-887-3800
          - i. The state will notify Division of Environmental Quality, 801-536-4250
      - 4) Nebraska
        - a) Nebraska State Patrol HQ Troop Area (24-hour emergency contact) Communications Center, 402-479-4921, alternate 402-471-4545

- B DOE/RFETS will notify
  - 1. Fire Dispatch Center, Rocky Flats Environmental Technology Site, 303- 966-4337, staffed on a 24/7 basis
  - 2. DOE/INEEL and request DOE Radiological Assistance Program (RAP) Team activation
    - a) May elect to activate RAP at DOE/Grand Junction as well as DOE/RFETS
    - b) Notify DOE Headquarters and any other effected DOE offices

II. **Emergency Response Personnel Actions**
- A Establish Incident Command
- B Initiate actions in accordance with the USDOT Emergency Response Guidebook, Guide 161
- C Notifications to be made by response personnel
  1. Waybill (in possession of Conductor)
     - a Fire Dispatch Center, Rocky Flats Environmental Technology Site, 303-966-4337, staffed on a 24/7 basis
  2. Departmental
  3. Local government
  4. Effected States
     - a Colorado
       - 1) Colorado Environmental Spill Reporting Line, 1-877-518-5608
         - a. State will notify State Radiation Management
       - 2) If incident occurs outside of Colorado, Colorado still needs to be notified
       - 3) Cities within Colorado
         - a) Denver
           - i. 911
           - ii. Denver Central Fire Dispatch (303) 331-4146
             - (1) Denver Fire will dispatch Denver HAZMAI
     - b Wyoming
       - 1) Wyoming Homeland Security 307-777-4321
         - a) The state will notify Health Physicist
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         - a) The state will notify Division of Environmental Quality
     - d Nebraska
       - 1) Nebraska State Patrol HQ Troop Area (24-hour emergency contact) Communications Center, 402-479-4921, alternate 402-471-4545

Follow-on Response

Each local, state, and federal agency will be responsible for carrying out their operational procedures and work within a Unified Command Structure to respond to the emergency.

Recovery

- Recovery will be considered completed when the response actions have been completed, any hazards have been mitigated, and full restoration of the accident site has been completed.
- Validation and agreement of recovery is determined by the state in consultation with the DOE, Kaiser-Hill, Union Pacific, Envirocare contractors, and local officials.

Points of Contact

For more information regarding response to accidents involving rail shipment of low level radiological waste, contact the following:

U.S. Department of Energy, Rocky Flats Project Office: Karen Lutz, 303-966-4546
State of Colorado: Tammy Ottmer, 303-692-3025
State of Utah: William Craig, 801-536-4250
State of Wyoming: Scott Ramsay, 307-777-4951
State of Nebraska: Jon Schwarz, 402-471-7420